APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/563,646	01/06/2006	Francesco Pessolano	NL030809	1901

65913   7590   06/19/2007
NXP, B.V.
NXP INTELLECTUAL PROPERTY DEPARTMENT
M/S41-SJ
1109 MCKAY DRIVE
SAN JOSE, CA 95131

EXAMINER
FONG, VINCENT

ART UNIT	PAPER NUMBER
2183	

MAIL DATE	DELIVERY MODE
06/19/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>03-26-2007</u>.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *1-5 and 8* is/are allowed.

6)☒ Claim(s) *6 and 7* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>01 June 2006</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All b)☐ Some * c)☐ None of:

      1.☒ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

This Office Action is in response to the amendments filed on 03-26-2007.

Claims 1 and 5-8 have been amended.

Claims 1-8 are rejected.

Claims 1-8 are pending and have been examined.

Claim Rejections - 35 USC § 112

1.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly
> claiming the subject matter which the applicant regards as his invention.

2.   Claim 6 and 7 are rejected under 35 U.S.C. 112, second paragraph, as being

indefinite for failing to particularly point out and distinctly claim the subject matter which

applicant regards as the invention.

It is unclear whether "previous branches" in claim 6 is part of the limitation or not.

Any claim not specifically addressed above, is being rejected as incorporating the

deficiencies of a claim upon which it depends.

Claim Rejections - 35 USC § 102

3.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public
> use or on sale in this country, more than one year prior to the date of application for patent in the United
> States.

4.   Claims 1-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Farcy et

al. ("Dataflow analysis of branch mispredictions and its application to early resolution of

branch outcomes", hereinafter Farcy).

As per claim 1, Farcy discloses:

Apparatus for predicting the outcome of a conditional branch within a computer system,

the apparatus comprising means for identifying the occurrence of a conditional branch

(Page 6 column 2 paragraph 7), system is able to tag all conditional branch, therefore

means to identify occurrence of conditional branch inherently exist, means for obtaining

data providing a measure of system activity since a previous branch (program window,

figure 9), means for comparing said data with data relating to previous system

activity(branch window, figure 9, page 6 column 1 paragraph 2), and means for

predicting the branch outcome based on such comparison (anticipation table, figure 9).

As per claim 2, rejection of claim 1 is incorporated and Farcy further discloses:

the data relating to system activity (instruction execution) comprises average system

activity (branch flow execution, page 6 column 1 paragraph 2), branch flow contain less

instructions when compare to program flow, therefore it only contain an average system

activity.

As per claim 3, rejection of claim 1 is incorporated and Farcy further discloses:

an activity history table is provided in which is stored data relating to previous system

activity (figure 9,10), each entry of the anticipation table corresponds to a particular

branch window and the branch outcome (outcome bit) to which such activity

corresponded (page 7 column 1 paragraph 6).

As per claim 4, rejection of claim 3 is incorporated and Farcy further discloses:

when a conditional branch is encountered (page 7 column 2 paragraph 2), retrieving

data relating the system activity between the current and previous branches (branch PC

which is associated to a particular branch window), and means for comparing this data

with the data contained in the activity history table (matching index to an entry in the

anticipation window) (page 7 column 1 paragraph 6), wherein said means for predicting

the branch outcome selects the branch outcome (anticipation bit, figure 10) which has

associated therewith activity data (branch window) which most closely resembles the

current retrieved activity data (matching the program window branch to a entry generate

by the corresponding branch window) (figure 9).

As per claim 5, rejection of claim 4 is incorporated and Farcy further discloses:

the activity history table (anticipation window) updated with the latest activity data

(outcome bit send to the anticipation window) (page 7 column 1 paragraph 6) and the

selected branch outcome (by clearing the read bits, page 7 column 2 paragraph 5).

As per claim 6, rejection of claim 1 is incorporated and Farcy further discloses:

means (gshare predictor) for predicting the outcome of a conditional branch using the

outcome history of that and previous branches (page 8 column 1 paragraph 5).

As per claim 7, rejection of claim 6 is incorporated and Farcy further discloses:

data relating to the activity of the system is only used for branch outcome prediction

(anticipation) if the confidence of accuracy of branch outcome prediction using branch

history (correlation based branch prediction) is relatively low (page 1 column 2

paragraph 2).

As per claim 8, Farcy discloses:

A method for predicting the outcome of a conditional branch within a computer system,

the method comprising the steps of identifying the occurrence of a conditional branch

(Page 6 column 2 paragraph 7), system is able to tag all conditional branch, therefore

means to identify occurrence of conditional branch inherently exist, obtaining data

providing a measure of system activity since a previous branch (program window, figure

9), comparing said data with data relating to previous system activity (branch window,

figure 9, page 6 column 1 paragraph 2), and predicting the branch outcome based on

such comparison (anticipation table, figure 9).

Response to Arguments

Applicant's amendments filed 03-26-2007 have been fully considered and they are

persuasive. In remarks, the applicant argues in substance:

(1) Applicant argues that Farcy does not provide a measure of system activity as

claimed in the amended claim 1 and 8.

Response

(1) Farcy discloses means for obtaining data providing a measure of system activity,
measure by definition means an evaluation or a basis of comparison per The American
Heritage Dictionary of the English Language, Fourth Edition, the program windows in
Farcy provides the tag of the branch instruction for branch prediction which is used
basis of comparison to determine whether the executing instruction (system activity) is a
branch instruction. And the system of Farcy contains means to make such comparison
and access the anticipation table if instruction is tagged.

In addition the anticipation table containing data relate to branch result of previously
executed branches in the branch window, therefore it is data relating to previous system
activity.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy
as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE
MONTHS from the mailing date of this action. In the event a first reply is filed within
TWO MONTHS of the mailing date of this final action and the advisory action is not
mailed until after the end of the THREE-MONTH shortened statutory period, then the
shortened statutory period will expire on the date the advisory action is mailed, and any
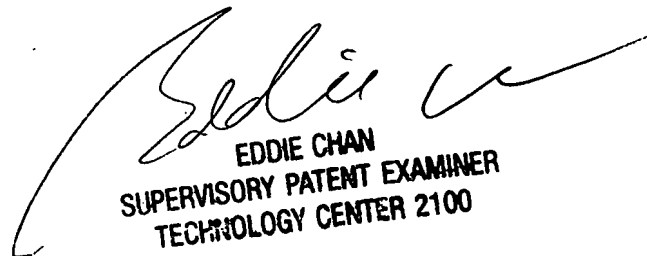extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vincent Fong whose telephone number is 571-270-1409. The examiner can normally be reached on 7:00-3:30 Mon - Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Chan can be reached on 571-272-4162. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

VF
Vincent Fong
9 June 2007

EDDIE CHAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100